

UNITED STATES MARINE CORPS
FIELD MEDICAL TRAINING BATTALION
Camp Lejeune, NC 28542-0042

FMSO 106

Introduction to Tactical Combat Casualty Care

TERMINAL LEARNING OBJECTIVE

1. Given a casualty in a tactical environment, perform Tactical Combat Casualty Care to reduce the risk of further injury or death. (8404-MED-2010)

ENABLING LEARNING OBJECTIVES

1. Without the aid of reference, given a description or list, define the principles of Tactical Combat Casualty Care (TCCC), within 80% accuracy, per Prehospital Trauma Life Support, current Military Edition. (8404-MED-2010a)

2. Without the aid of reference, given a description or list, define the first phase of TCCC, within 80% accuracy, per Prehospital Trauma Life Support, current Military Edition. (8404-MED-2010b)

3. Without the aid of reference, given a description or list, define the second phase of TCCC, within 80% accuracy, per Prehospital Trauma Life Support, current Military Edition. (8404-MED-2010c)

4. Without the aid of reference, given a description or list, define the third phase of TCCC, within 80% accuracy, per Prehospital Trauma Life Support, current Military Edition. (8404-MED-2010d)

OVERVIEW

Pre-hospital trauma care on the battlefield differs greatly than pre-hospital trauma care practiced in the private sector. The types and severity of injuries are different than those encountered in civilian settings and combat medical personnel face multiple additional challenges in caring for their wounded teammates in a tactical setting. They must provide care while under hostile fire, often working in the dark with multiple casualties and limited equipment. They must also often contend with prolonged evacuation times as well as the need for tactical maneuvering superimposed upon their efforts to render care.

1. HISTORY

a. In the mid-1990s, a Special Operations medical research project was undertaken with the goal of improving the survivability of combat trauma injuries by improving the kind of care rendered on the battlefield. This research effort developed a new concept called Tactical Combat Casualty Care (TCCC) and proposed a set of pre-hospital trauma care guidelines that were customized for use on the battlefield. This effort was focused on the most common historical causes of preventable death in combat (see figure 1.). The TCCC guidelines were quickly adopted by the Navy Sea, Air, and Land (SEAL) community, the 75th Ranger Regiment, and later by a few other military units. With increasing reports of success from units using the techniques advocated by TCCC, this new approach to battlefield trauma care began to spread throughout the US military. The tri-service Committee on TCCC (CoTCCC) was begun in 2001 to ensure that emerging technology and information is incorporated into the TCCC guidelines on an ongoing basis. The membership of the CoTCCC includes combat medics, Corpsmen, and PJs as well as physicians and physician assistants. The Committee is a standing multi-service committee charged with monitoring medical developments in regards to practice, technology, pharmacology and doctrine. New concepts in hemorrhage control, airway management, fluid resuscitation, analgesia, antibiotics and other lifesaving techniques are important steps in providing the best possible care for our Marines and Sailors in combat.

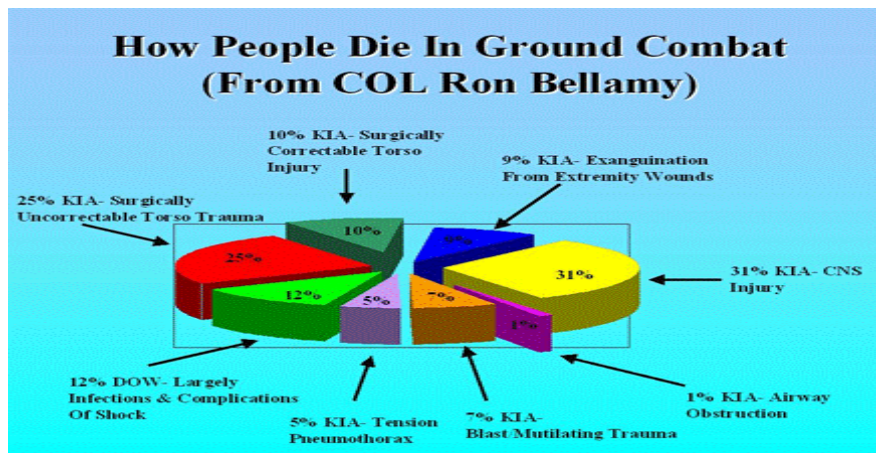


Figure 1. How People Die in Ground Combat

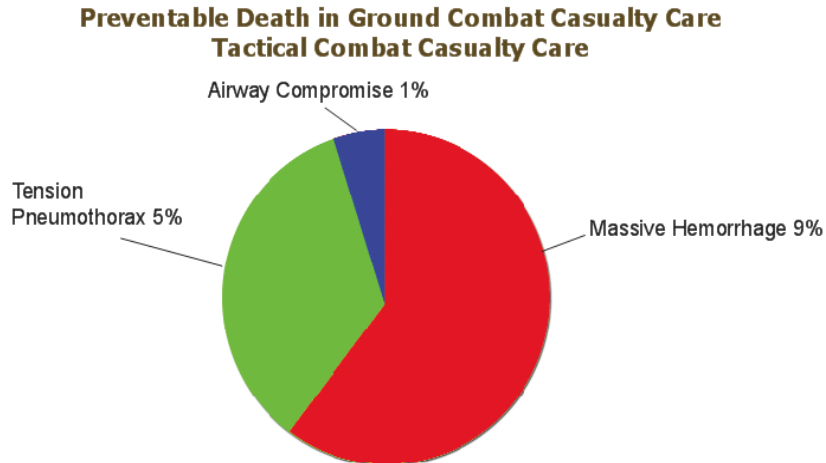


Figure 2.

b. The core principles of TCCC are to avoid preventable deaths (see figure 2.) and to combine good medicine with good tactics. The TCCC guidelines were included in the fourth edition of the Prehospital Trauma Life Support Manual. The trauma care recommendations found in the Prehospital Trauma Life Support Manual carry the endorsement of the American College of Surgeons' Committee on Trauma and the National Association of EMTs, making TCCC the first set of battlefield trauma care guidelines to have earned this dual endorsement. There is now a military edition of the Prehospital Trauma Life Support Manual that focuses on the principles of TCCC. Further, the Prehospital Trauma Life Support Executive Council has undertaken a program to provide TCCC training to law enforcement agencies and the militaries of allied countries when these groups request it. US combat medics, Corpsmen, and PJs are now taught battlefield trauma care techniques based on the TCCC guidelines. These guidelines are reviewed quarterly and updated as needed by the CoTCCC. Changes proposed by the CoTCCC are reviewed by both the Trauma and Injury Subcommittee and the Core Board of the Defense Health Board. Once approved, updated versions of the TCCC guidelines are posted on both the Military Health System (www.health.net) and the PHTLS Web sites. At 3-year to 4-year intervals, the TCCC guidelines are also published in updated versions of the Military Edition of the Prehospital Trauma Life Support Manual. The changes in battlefield trauma care are dramatic and unprecedented. Numerous reports published in the medical literature and collected from combat first responders have now documented that TCCC is saving lives and is improving the tactical flow of missions on which casualties have occurred.

2. **PRINCIPLES OF TACTICAL COMBAT CASUALTY CARE (TCCC)**

a. The principles of Tactical Combat Casualty Care are fundamentally different from those of traditional civilian trauma care, where most medical providers, medics, and Corpsmen train. These differences are based on both the unique patterns and types of wounds that are suffered in combat and the tactical conditions medical personnel face in combat. Unique combat wounds and tactical conditions can make it difficult to determine which intervention to perform at what time. Besides addressing a casualty's medical condition, responding medical

personnel must also address the tactical problems faced while providing care in combat. A medically correct intervention at the wrong time may lead to further casualties. Put another way, “good medicine may be a bad tactical decision,” which can get the rescuer and the casualty killed. To successfully navigate these issues, medical providers must have skills and training oriented to combat trauma care, as opposed to civilian trauma care.

b. The specifics of casualty care in the tactical setting will depend on the tactical situation, the injuries sustained by the casualty, the knowledge and skills of the first responder, and the medical equipment at hand. In contrast to a hospital Emergency Department setting where the patient IS the mission, on the battlefield, care of casualties sustained is only PART of the mission. TCCC recognizes this fact and structures its guidelines to accomplish three primary goals:

(1) Treat the casualty

(2) Prevent additional casualties

(3) Complete the mission

In thinking about the management of combat casualties, it is helpful to divide care into three distinct phases, each with its own characteristics and limitations. The three phases of care are: Care Under Fire, Tactical Field Care, and Tactical Evacuation Care.

3. **FIRST PHASE OF TCCC**

a. **Care Under Fire** - care rendered at the scene while both the Corpsman and the casualty are still under effective hostile fire. The point of injury is generally in the fire zone or “on the X.” The risk of additional injuries from hostile fire at any moment is extremely high. Equipment is usually limited to what is carried by the casualty and the Corpsman. Suppression of hostile fire and moving the casualty to a safe position are major considerations at this point. The need for medical care must be weighed against the need to move to cover and to suppress hostile fire rapidly. Moving a casualty to safety must only be done if it is tactically feasible. Rescuers should never move into a zeroed-in position.

Fire superiority is considered the best medicine since the fewer rounds coming at your Marines, the fewer injuries they will have.

b. The Management Care Plan for Care Under Fire begins with returning fire.

(1) **Return Fire and take cover.** Medical personnel may need to assist in returning fire instead of stopping to care for casualties. Suppression of hostile fire will minimize the risk of both new casualties and additional injuries to existing casualties. The firepower contributed by medical personnel and casualties themselves may be essential to tactical fire superiority.

(2) **Direct/Expect the casualty to remain engaged as a combatant**, if they are able. Depending on the kind of wound a casualty sustains, they may still be able to fire their weapon. If a Marine is able to fight, they should continue to fight.

(3) **Direct the casualty to move to cover and apply self-aid**, if possible. If the casualty can move themselves to cover, this will avoid exposing others to enemy fire and will reduce the chances of the casualty sustaining additional wounds. Unresponsive casualties are unlikely to be saved and risking additional lives by exposure to fire to move the casualty is not warranted. Responsive casualties who cannot move should be moved to safety but only if it is TACTICALLY FEASIBLE. If you must move a casualty during Care Under Fire there are many things to consider. First, determine the potential risk to rescuers. Where is fire coming from? Is it direct or indirect? Also consider your assets. What can rescuers provide in the way of covering fire, screening, shielding, and rescue equipment (if any)? Make sure everyone understands their role in the rescue and which movement technique will be used. It is also helpful if the casualty knows the plan so they can assist as much as possible. You should also know the location of the nearest cover. How far will the casualty need to be moved? Additionally, it's important to consider the weight of the casualty as it compares to the rescuer. You won't get far with one rescuer if the casualty requires two rescuers due to his size and weight. If it's possible to recover the casualty's weapons during the move, do so. When moving a casualty, there are certain moves, or "carries" that are recommended. There are advantages and disadvantages to each kind of carry.

(a) **TYPES OF CARRIES**

1. One person drag without a line.
 - a. Advantages: There is no equipment required. Just grab the casualty by the loop on the flak, if possible. During this move, only one rescuer is exposed to hostile fire.
 - b. Disadvantages: This carry may be slow and it is not an optimal body position to sustain for very long.
2. Two person drag without a line.
 - a. Advantages: This move is much faster than the one person drag.
 - b. Disadvantages: Unfortunately, this move exposes two rescuers to hostile fire.
3. Two person drag with lines.
 - a. Advantages: You can shoot while dragging. This move is much faster to cover and it is much easier than dragging without lines.
 - b. Disadvantages: The two person drag with lines also exposes two rescuers to hostile fire.
4. SEAL Team Three Carry.
 - a. Advantages: May be useful in situations where drags do not work well. It's also less painful for the casualty than dragging.
 - b. Disadvantages: It may be slower than dragging and may be more difficult,

especially with an unconscious casualty. Unfortunately, this move also exposes two rescuers to hostile fire.

5. Hawes Carry.

a. Advantages: This carry requires only one rescuer and may be useful in situations where a drag is not a good option. It's much better than the outdated fireman's carry.

b. Disadvantages: It's hard to accomplish with the rescuer's and casualty's gear in place. It's also difficult when the casualty is bigger than the rescuer. It's often much slower than dragging and it creates a high profile for both casualty and rescuer, which exposes them both to hostile fire.

(4) Casualties should be extricated from burning vehicles or buildings and moved to places of relative safety. Do what is necessary to stop the burning process.

(5) **Airway Management is best deferred until the Tactical Care Phase.**

(6) **Stop Life Threatening Extremity Hemorrhage, if Tactically Feasible.**

(7) **Direct the casualty to control hemorrhage with self-aid, if able.**

(a) Tourniquets. Use a CoTCCC recommended tourniquet for hemorrhage that is anatomically amenable to tourniquet application. Apply the tourniquet proximal to the bleeding site, over the uniform, tighten until the bleeding stops. Early control of severe hemorrhage is critical. Only life-threatening bleeding warrants intervention during Care Under Fire. It is important for all members of the unit to have a tourniquet available at a standard location on their gear. All members of the unit should be taught by the Corpsmen where to carry the tourniquet and how to use it. A casualty should be able to easily reach their own tourniquet and apply it quickly. Also, a rescuer can find the casualty's own tourniquet and use it on them. Both the casualty and the Corpsman (or other rescuer) are in grave danger while applying a tourniquet. For that reason, only wounds requiring a tourniquet are treated. All other bleeding should be ignored until the Tactical Field Care Phase. If one tourniquet does not control the bleeding, a second tourniquet may need to be applied just above the first one. Don't put a tourniquet over the knee or elbow or over a holster or cargo pocket containing bulky items. Immediate control of extremity hemorrhage with a tourniquet is the most important life-saving intervention in Care Under Fire and is the only medical care that should be rendered before the casualty is moved to cover.

2. **SECOND PHASE OF TCCC**

a. **Tactical Field Care** - care rendered once the Corpsman and casualties are no longer under effective hostile fire. This may consist of rapid treatment of the most serious wounds with the expectation of re-engagement or, there may be ample time to render whatever care is possible in the field. This also applies to situations in which an injury has occurred on a mission, but there has been no hostile fire. Available medical equipment is still limited to

that carried into the field by mission personnel. Time to evacuation may vary from minutes to hours.

b. The Management Care Plan for Tactical Field Care begins with disarming any casualty with an altered mental status. Armed casualties pose a significant risk to others in their unit if they employ their weapons inappropriately. In the combat setting, altered mental status may be caused by traumatic brain injury, shock, or medications. Then, the **MARCH** algorithm is used.

- (1) **M**- Massive Hemorrhage Assessment.
- (2) **A**-Airway Assessment.
- (3) **R**-Respiratory Trauma Assessment.
- (4) **C**-Circulatory Assessment.
- (5) **H**-Head Trauma Assessment and Hypothermia Assessment.

c. After MARCH, all other injuries are treated. If possible, casualties should be monitored with pulse oximetry to determine oxygen saturation in the blood. Pain medications and antibiotics that are specifically recommended for the battlefield are given according to specific injuries and conditions. Burns are to be treated last. All care rendered will be documented on the TCCC Casualty Card before the casualty is evacuated to the next level of care. Don't forget to communicate as much as possible to the casualty.

3. **THIRD PHASE OF TCCC**

a. **Tactical Evacuation (TACEVAC)** - casualties are transported to a higher level of care. Tactical evacuation care encompasses both medical evacuation (MEDEVAC) and casualty evacuation (CASEVAC) as defined in Joint Publication 4-02.

- (1) CASEVAC platforms are typically armed tactical assets that bear no Red Cross markings. They provide unregulated movement from the point of injury to the first point of advanced medical care.
- (2) MEDEVAC refers to regulated casualty movement using dedicated medical evacuation platforms (ground vehicles, rotary wing aircraft, etc) that are crewed by medical personnel.

b. Additional personnel and medical equipment may be available in this phase, which allows for an enhanced level of medical care compared to the first two phases. Electronic monitoring systems capable of providing blood pressure, heart rate and pulse oximetry may be available during evacuation. Portable fluid warmers and blood products may also be available.

REFERENCES:

Prehospital Trauma Life Support (PHTLS), current Military Edition

National Association of Emergency Medical Technicians: current edition

Intro to TCCC Review Questions

1. What are the three goals of TCCC?
 - 1)
 - 2)
 - 3)
2. What is the first phase of TCCC?
3. What is the only medical care performed during Care Under Fire?
4. Which phase of TCCC is Tactical Field Care?
5. List the acronym for medical priorities in Tactical Field Care.
 - 1)
 - 2)
 - 3)
 - 4)
 - 5)
6. What does TACEVAC encompass?

7. Which phase of TCCC has the most readily available medical equipment?